

1) d) Të caktohet matrica e lidhjeve

$$A = \begin{matrix} & \begin{matrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 \end{matrix} \\ \begin{matrix} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \\ 7 \\ 8 \\ 9 \\ 10 \end{matrix} & \begin{bmatrix} 1 & 0 & 0 & 1 & 1 & 0 & 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 1 & 0 & 1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 1 & 0 & 0 & 1 & 0 & 1 \\ 1 & 1 & 0 & 1 & 1 & 0 & 0 & 0 & 0 & 1 \\ 1 & 0 & 1 & 1 & 1 & 0 & 0 & 1 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 & 1 & 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 & 1 & 1 & 1 & 1 & 0 & 0 \\ 1 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 1 & 0 \\ 0 & 0 & 1 & 1 & 0 & 0 & 0 & 0 & 0 & 1 \end{bmatrix} \end{matrix} \quad 10 \times 10$$

e) Të caktohet matrica e incidencës

$$M = \begin{matrix} & \begin{matrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 & 11 & 12 & 13 & 14 & 15 & 16 & 17 & 18 & 19 & 20 & 21 & 22 & 23 & 24 \end{matrix} \\ \begin{matrix} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \\ 7 \\ 8 \\ 9 \\ 10 \end{matrix} & \begin{bmatrix} 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 1 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 1 & 0 & 1 & 0 & 0 & 1 & 1 & 1 & 1 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 1 & 0 & 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 1 & 1 & 0 & 1 & 1 & 1 & 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 1 & 1 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 1 & 1 & 0 & 0 & 0 & 0 \\ 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 1 & 0 & 0 & 0 & 0 & 0 & 1 & 1 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 1 & 0 & 0 & 0 \end{bmatrix} \end{matrix}$$

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2)

a) Te calculezi matricea e îngrămășii

A =

	a	b	c	d	e	f	g	h	i	j	k	l	m
a	1	1	0	1	0	0	0	1	0	0	0	0	0
b	1	1	1	1	1	0	0	0	0	0	0	0	0
c	0	1	1	0	0	1	0	0	0	0	0	0	0
d	1	1	0	1	0	0	0	1	1	0	0	0	0
e	0	1	0	0	1	1	1	0	0	1	1	0	0
f	0	0	1	0	1	1	1	0	0	1	1	0	0
g	0	0	0	0	0	1	1	0	0	0	1	0	0
h	1	0	0	1	0	0	0	1	1	0	0	1	0
i	0	0	0	1	1	0	0	1	1	1	0	0	1
j	0	0	0	0	1	1	0	0	1	1	0	0	1
k	0	0	0	0	0	1	1	0	0	0	1	0	1
l	0	0	0	0	0	0	0	1	0	0	0	1	1
m	0	0	0	0	0	0	0	0	1	1	1	1	1

13x13

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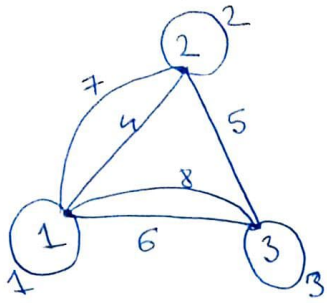
b) Te calculează matricea e incidenței

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
a	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
b	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
c	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
d	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
e	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
f	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
g	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
h	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
i	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
j	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
k	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
l	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
m	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

13x36

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3) a) Të ciltohet grafi G



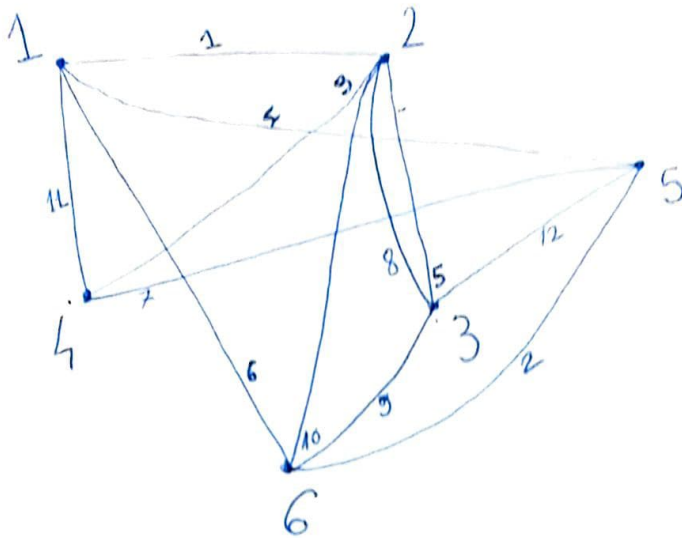
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b) Të ciltohet matrica e ngjyeshë

$$A = \begin{matrix} & \begin{matrix} 1 & 2 & 3 \end{matrix} \\ \begin{matrix} 1 \\ 2 \\ 3 \end{matrix} & \begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & 1 \\ 2 & 1 & 1 \end{bmatrix} \end{matrix}_{3 \times 3}$$

4) a) Të caktohet grafë G.

Shprehja e matricës së ngjyrosjes
1 3 2 0 4 2 2 3 4



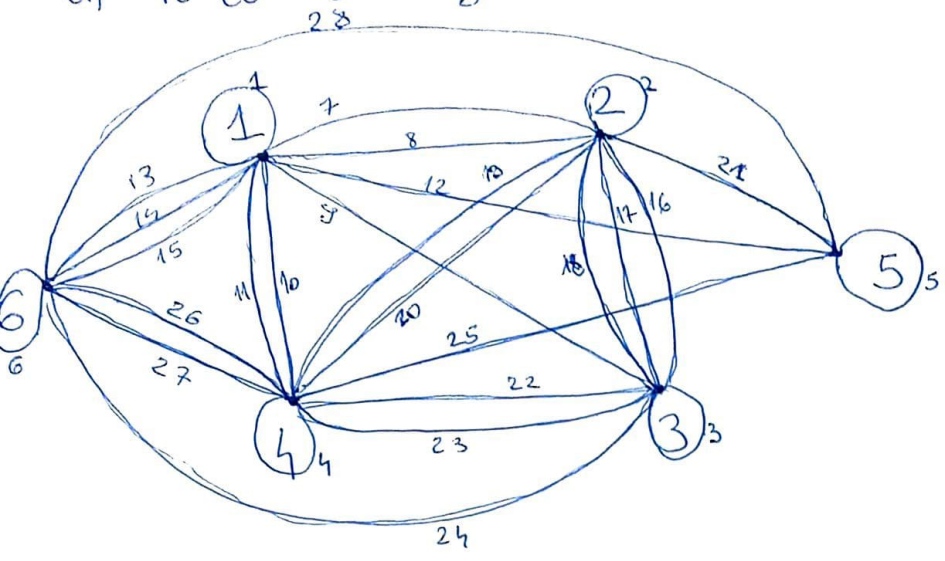
b) Të caktohet matrica e ngjyrosjes:

$$= \begin{matrix} & \begin{matrix} 1 & 2 & 3 & 4 & 5 & 6 \end{matrix} \\ \begin{matrix} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{matrix} & \begin{bmatrix} 0 & 1 & 0 & 1 & 1 & 1 \\ 1 & 0 & 2 & 1 & 0 & 1 \\ 0 & 2 & 0 & 0 & 1 & 1 \\ 1 & 1 & 0 & 0 & 1 & 0 \\ 1 & 0 & 1 & 1 & 0 & 1 \\ 1 & 1 & 1 & 0 & 1 & 0 \end{bmatrix} \end{matrix}$$

5)

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a) Te caktohet grafi G.



b)

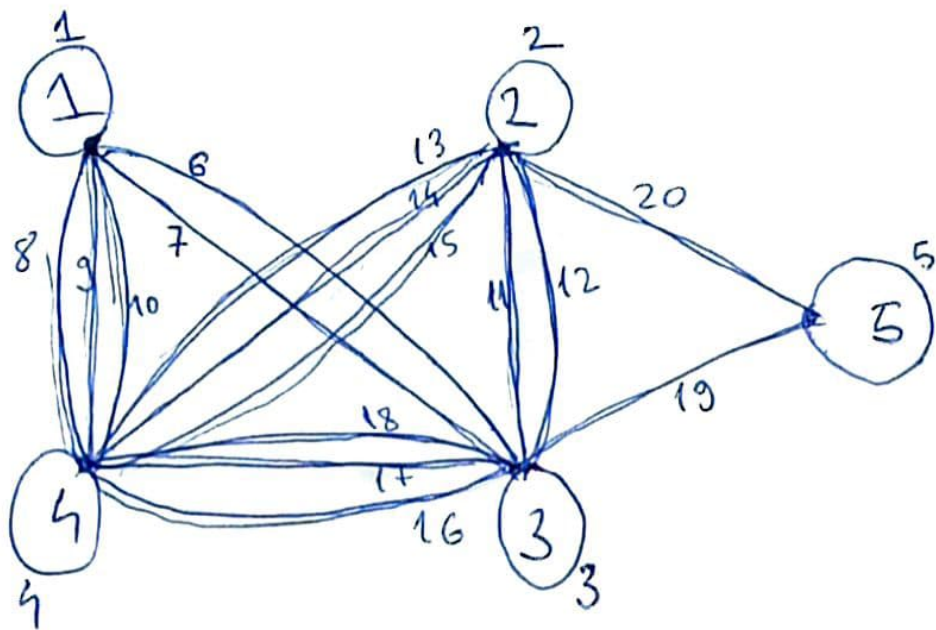
M =

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	1	0	0	0	0	0	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0
3	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	0	0	0	1	1	1	0	0	0	0
4	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	1	0	1	1	0	1	1	1	0
5	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1
6	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1

6)

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a) Të caktohet grafi G :



6)

b) Te coletar a matriz e incidências.

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M =

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1	1	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0
2	0	1	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	1	0
3	0	0	1	0	0	1	1	0	0	0	1	1	0	0	0	1	1	1	1	0	0
4	0	0	0	1	0	0	0	1	1	1	0	0	1	1	1	1	1	1	0	0	0
5	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1

5x20

$$7) d(V_1, V_5) = ? \quad l(V_1) = 0 \quad l(V_2) = l(V_3) = l(V_4) = l(V_5) = l(V_6) = \infty$$

$$\text{Hypothesis I: } l(V_1) = 0 \quad S_1 = \{V_1\} \quad S_1^c = \{V_2, V_3, V_4, V_5, V_6\}$$

$$l(V_2) = \min\{\infty, 0+1\} = 1 \checkmark$$

$$l(V_3) = \min\{\infty, 0+3\} = 3$$

$$l(V_4) = \min\{\infty, 0+\infty\} = \infty$$

$$l(V_5) = \min\{\infty, 0+6\} = 6$$

$$l(V_6) = \min\{\infty, 0+\infty\} = \infty$$

$$\text{Hypothesis II: } l(V_2) = 1 \quad S_2 = \{V_1, V_2\}$$

$$l(V_3) = \min\{3, 1+2\} = 3 \checkmark$$

$$l(V_4) = \min\{\infty, 1+3\} = 4$$

$$l(V_5) = \min\{6, 1+5\} = 6$$

$$l(V_6) = \min\{\infty, 1+\infty\} = \infty$$

$$\text{Hypothesis III: } l(V_3) = 3 \quad S_3 = \{V_1, V_2, V_3\}$$

$$l(V_4) = \min\{4, 3+5\} = 4 \checkmark$$

$$l(V_5) = \min\{6, 3+\infty\} = 6$$

$$l(V_6) = \min\{\infty, 3+2\} = 5$$

$$\text{Hypothesis IV: } l(V_4) = 4 \quad S_4 = \{V_1, V_2, V_3, V_4\}$$

$$l(V_5) = \min\{6, 4+2\} = 6$$

$$l(V_6) = \min\{5, 4+2\} = 5 \checkmark$$

$$\text{Hypothesis V: } l(V_6) = 5 \quad S_5 = \{V_1, V_2, V_3, V_4, V_6\}$$

$$l(V_5) = \min\{6, 5+1\} = 6 \checkmark$$

$$\boxed{d(V_1, V_5) = 6}$$

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$$8) \quad d(0,5) = ? \quad l(0) = 0 \quad l(1) = l(2) = l(3) = l(4) = l(5) = l(6) = l(7) = l(8)$$

$$\text{Hypo 1: } l(0) = 0 \quad S_0 = \{0\} \quad S_0^c = \{1, 2, 3, 4, 5, 6, 7, 8\}$$

$$l(1) = \min\{\infty, 0+4\} = 4 \quad \checkmark$$

$$l(2) = \min\{\infty, 0+\infty\} = \infty$$

$$l(3) = \min\{\infty, 0+\infty\} = \infty$$

$$l(4) = l(5) = l(6) = l(8) = \infty$$

$$l(7) = \min\{\infty, 0+8\} = 8$$

$$\text{Hypo 2: } l(1) = 4 \quad S_1 = \{0, 1\}$$

$$l(2) = \min\{\infty, 4+8\} = 12$$

$$l(7) = \min\{8, 4+11\} = 8 \quad \checkmark$$

$$l(3) = l(4) = l(5) = l(6) = l(8) = \infty$$

$$\text{Hypo 3: } l(7) = 8 \quad S_7 = \{0, 1, 7\} \quad S_7^c = \{2, 3, 4, 5, 6, 8\}$$

$$l(2) = \min\{12, 8+\infty\} = 12$$

$$l(3) = \min\{\infty, 8+\infty\} = \infty$$

$$l(4) = \min\{\infty, 8+\infty\} = \infty$$

$$l(5) = \min\{\infty, 8+\infty\} = \infty$$

$$l(6) = \min\{\infty, 8+1\} = 9 \quad \checkmark$$

$$l(8) = \min\{\infty, 8+7\} = 11$$

$$\text{Hypo 4: } l(6) = 9 \quad S_6 = \{0, 1, 7, 6\} \quad S_6^c = \{2, 3, 4, 5, 8\}$$

$$l(2) = \min\{12, 9+\infty\} = 12$$

$$l(3) = \min\{\infty, 9+\infty\} = \infty$$

$$l(4) = \min\{\infty, 9+\infty\} = \infty$$

$$l(5) = \min\{\infty, 9+2\} = 11 \quad \checkmark$$

$$l(8) = \min\{11, 9+6\} = 11$$

$$\boxed{d(0,5) = 11}$$

$$9) d(A, H) = ? \quad l(A) = 0 \quad l(B) = l(C) = l(D) = l(E) = l(F) = l(G) = l(H) = \infty$$

$$\text{Hape I: } l(A) = 0 \quad S_A = \{A\} \quad S_A^C = \{B, C, D, E, F, G, H\}$$

$$l(B) = \min\{\infty, 0 + 22\} = 22$$

$$l(C) = \min\{\infty, 0 + 1\} = 1 \checkmark$$

$$l(D) = l(E) = l(F) = l(G) = l(H) = \infty$$

$$\text{Hape II: } l(C) = 1 \quad S_C = \{A, C\} \quad S_C^C = \{B, D, E, F, G, H\}$$

$$l(B) = \min\{22, 1 + 20\} = 21$$

$$l(D) = \min\{\infty, 1 + 9\} = 10$$

$$l(E) = \min\{\infty, 1 + \infty\} = \infty$$

$$l(F) = \min\{\infty, 1 + 2\} = 3 \checkmark$$

$$l(G) = l(H) = \infty$$

$$\text{Hape III: } l(F) = 3 \quad S_F = \{A, C, F\} \quad S_F^C = \{B, D, E, G, H\}$$

$$l(B) = \min\{21, 3 + \infty\} = 21$$

$$l(D) = \min\{10, 3 + \infty\} = 10$$

$$l(E) = \min\{\infty, 3 + 11\} = 14$$

$$l(G) = \min\{\infty, 3 + \infty\} = \infty$$

$$l(H) = \min\{\infty, 3 + 3\} = 6 \checkmark$$

$$d(A, H) = 6$$

$$\text{Hape IV: } l(H) = 6 \quad S_H = \{A, C, F, H\} \quad S_H^C = \{B, D, E, G\}$$

$$l(B) = \min\{21, 6 + \infty\} = 21$$

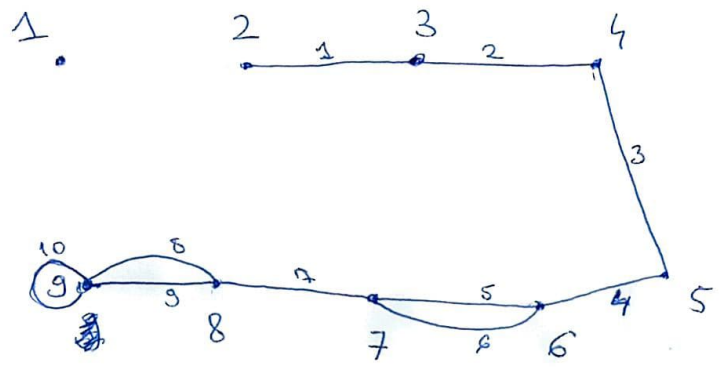
$$l(D) = \min\{10, 6 + \infty\} = 10 \checkmark$$

$$l(E) = \min\{14, 6 + 7\} = 13$$

$$l(G) = \min\{\infty, 6 + 4\} = 10$$

10) 0, 1, 2, 2, 2, 3, 3, 3, 4

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$A =$

	1	2	3	4	5	6	7	8	9
1	0	0	0	0	0	0	0	0	0
2	0	0	1	0	0	0	0	0	0
3	0	1	0	1	0	0	0	0	0
4	0	0	1	0	1	0	2	0	0
5	0	0	0	1	0	1	0	0	0
6	0	0	0	0	1	0	2	0	0
7	0	0	0	0	0	2	0	1	0
8	0	0	0	0	0	0	1	0	2
9	0	0	0	0	0	0	0	2	1

9x9

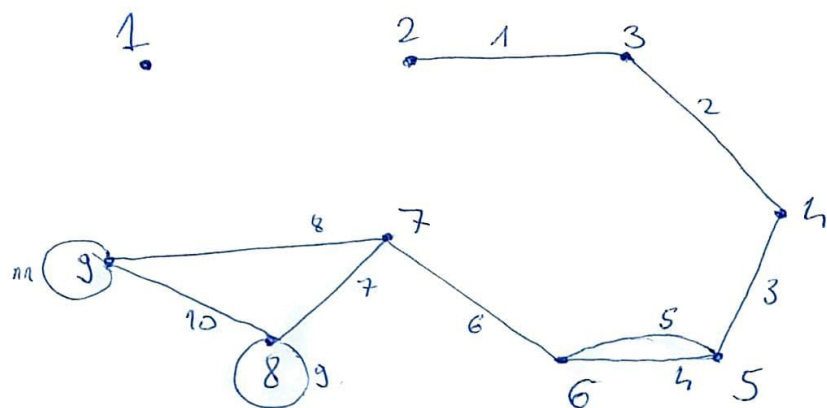
$M =$

	1	2	3	4	5	6	7	8	9	10
1	0	0	0	0	0	0	0	0	0	0
2	1	0	0	0	0	0	0	0	0	0
3	1	1	0	0	0	0	0	0	0	0
4	0	1	1	0	0	0	0	0	0	0
5	0	0	1	1	0	0	0	0	0	0
6	0	0	0	1	1	1	0	0	0	0
7	0	0	0	0	1	1	1	0	0	0
8	0	0	0	0	0	1	1	1	0	0
9	0	0	0	0	0	0	1	1	1	0

9x10

11)

0, 1, 2, 2, 3, 3, 3, 4, 4

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$$A = \begin{bmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ \begin{matrix} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \\ 7 \\ 8 \\ 9 \end{matrix} & \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 & 2 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 & 0 & 1 & 1 \\ 0 & 0 & 0 & 0 & 0 & 0 & 1 & 1 & 1 \end{bmatrix} \quad 9 \times 9$$

$$M = \begin{bmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 & 11 \\ \begin{matrix} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \\ 7 \\ 8 \\ 9 \end{matrix} & \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 1 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 1 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 1 & 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 & 1 & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 1 & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 1 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 1 & 1 \end{bmatrix} \quad 9 \times 11$$

12)

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a)

k	d	i	h	s	j	o	ë	m	e	t
23	7	18	11	35	26	5	14	29	12	15

Hoyi I: Riorganixim

7	9	11	12	14	15	18	23	26	29	35
d	o	h	e	ë	t	i	k	j	m	a

$$7 + 9 = 16$$

$$d + o = T_1$$

16	11	12	14	15	18	23	26	29	35
T ₁	h	e	ë	t	i	k	j	m	a

Hoyi II: Riorganixim

11	12	14	15	16	18	23	26	29	35
h	e	ë	t	T ₁	i	k	j	m	a

$$11 + 12 = 23$$

$$h + e = T_2$$

23	23	14	15	16	18	23	26	29	35
T₂	T ₂	ë	t	T ₁	i	k	j	m	a

Hoyi III: Riorganixim:

14	15	16	18	23	23	26	29	35
ë	t	T ₁	i	k	T ₂	j	m	a

$$14 + 15 = 29$$

$$ë + t = T_3$$

29	16	18	23	23	26	29	35
T ₃	T ₁	i	k	T ₂	j	m	a

Hoyi IV: Riorganiximë:

16	18	23	23	26	29	29	35
T ₁	i	k	T ₂	j	m	T ₃	a

$$16 + 18 = 34 \quad T_1 + i = T_4$$

34	23	23	26	29	29	35
T ₄	k	T ₂	j	m	T ₃	a

12) a)

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Etape V: Réorganisation

23	23	26	29	29	34	35
k	T ₂	j	m	T ₃	T ₄	2

$$23 + 23 = 46$$

$$k + T_2 = T_5$$

46	26	29	29	34	35
T ₅	j	m	T ₃	T ₄	2

Etape VI: Réorganisation

26	29	29	34	35	46
j	m	T ₃	T ₄	2	T ₅

$$26 + 29 = 55$$

$$j + m = T_6$$

55	29	34	35	46
T ₆	T ₃	T ₄	2	T ₅

Etape VII: Réorganisation

29	34	35	46	55
T ₃	T ₄	2	T ₅	T ₆

$$29 + 34 = 63$$

$$T_3 + T_4 = T_7$$

63	35	46	55
T ₇	2	T ₅	T ₆

Etape VIII: Réorganisation

35	46	55	63
2	T ₅	T ₆	T ₇

$$35 + 46 = 81$$

$$2 + T_5 = T_8$$

81	55	63
T ₈	T ₆	T ₇

Etape IX: Réorganisation

55	63	81
T ₆	T ₇	T ₈

$$55 + 63 = 118$$

$$T_6 + T_7 = T_9$$

118	81
T ₉	T ₈

Etape X: Réorganisation

81	118
T ₈	T ₉

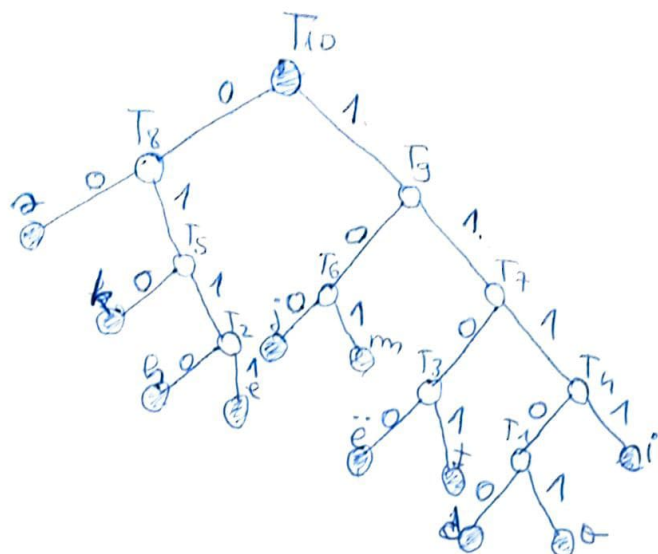
$$T_8 + T_9 = T_{10}$$

$$81 + 118 = 199$$



199
T ₁₀

b)



$k = 0110$
 $d = 11100$
 $i = 1111$
 $h = 0110$
 $s = 00$
 $j = 100$
 $t = 11101$
 $\ddot{e} = 1100$
 $m = 101$
 $e = 0111$
 $t = 1101$

c) $koh\ddot{e} \Rightarrow 010 \ 11101 \ 0110 \ 1100$
 $dit\ddot{e} \Rightarrow 11100 \ 1111 \ 1101 \ 1100$
 $m\ddot{e}xim \Rightarrow 101 \ 1100 \ 00 \ 1111 \ 101$
 $dije \Rightarrow 11100 \ 1111 \ 100 \ 0111$

$$d) W(jet\ddot{e}) = f(j) \cdot f(j) + f(e) \cdot f(e) + f(t) \cdot f(t) + f(\ddot{e}) \cdot f(\ddot{e}) =$$

$$= 3 \cdot 26 + 4 \cdot 12 + 4 \cdot 15 + 4 \cdot 14 = 78 + 48 + 60 + 56 = \underline{242}$$

$$W(m\ddot{e}xim) = 3 \cdot 29 + 4 \cdot 14 + 2 \cdot 35 + 4 \cdot 18 + 3 \cdot 29 =$$

$$= 87 + 56 + 70 + 72 + 87 = \underline{372}$$

$$W(dije) = 5 \cdot 7 + 4 \cdot 18 + 3 \cdot 26 + 4 \cdot 12 = 35 + 72 + 78 + 48 = \underline{233}$$

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d	s	i	h	a	n	o	ë	m	j	y	a	e
23	17	5	11	31	26	19	14	29	18	15	6	22

Hapi 1: Riorganizim

5	6	11	14	15	17	18	19	22	23	26	29	31
i	a	h	ë	y	s	j	o	e	d	m	m	r

$$5 + 6 = 11$$

$$i + a = T_1$$

11	11	14	15	17	18	19	22	23	26	29	31
T ₁	h	ë	y	s	j	o	e	d	m	m	r

Hapi 2: Riorganizimë:

11	11	14	15	17	18	19	22	23	26	29	31
T ₁	h	ë	y	s	j	o	e	d	m	m	r

$$11 + 11 = 22$$

$$T_1 + h = T_2$$

22	14	15	17	18	19	22	23	26	29	31
T ₂	ë	y	s	j	o	e	d	m	m	r

Hapi 3: Riorganizimë

14	15	17	18	19	22	22	23	26	29	31
ë	y	s	j	o	T ₂	e	d	m	m	r

$$14 + 15 = 29$$

$$ë + y = T_3$$

29	17	18	19	22	22	23	26	29	31
T ₃	s	j	o	T ₂	e	d	m	m	r

Hapi 4: Riorganizimë

17	18	19	22	22	23	26	29	29	31
s	j	o	T ₂	e	d	m	T ₃	m	r

$$17 + 18 = 35$$

$$s + j = T_4$$

35	19	22	22	23	26	29	29	31
T ₄	o	T ₂	e	d	m	T ₃	m	r

(13)

a)

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Hapi 5: Riorganizimë

19	22	22	23	26	29	29	31	35	$19+22=41$
e	T_2	e	d	m	T_3	m	n	T_4	$0+T_2=T_5$

41	22	23	26	29	29	31	35
T_5	e	d	m	T_3	m	n	T_4

Hapi 6: Riorganizimë

22	23	26	29	29	31	35	41
e	d	m	T_3	m	n	T_4	T_5

$$22+23=45$$

$$e+d=T_6$$

45	26	29	29	31	35	41
T_6	m	T_3	m	n	T_4	T_5

Hapi 7: Riorganizimë

26	29	29	31	35	41	45
m	T_3	m	n	T_4	T_5	T_6

$$26+29=55$$

$$m+T_3=T_7$$

55	29	31	35	41	45
T_7	m	n	T_4	T_5	T_6

Hapi 8: Riorganizimë

29	31	35	41	45	55
m	n	T_4	T_5	T_6	T_7

$$29+31=60$$

$$m+n=T_8$$

60	35	41	45	55
T_8	T_4	T_5	T_6	T_7

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Langkah 9: Reragaman:

35	41	45	55	60
T_4	T_5	T_6	T_7	T_8

$$35 + 41 = 76$$
$$T_4 + T_5 = T_9$$

76	45	55	60
T_9	T_6	T_7	T_8

Langkah 10: Reragaman:

45	55	60	76
T_6	T_7	T_8	T_9

$$45 + 55 = 100$$
$$T_6 + T_7 = T_{10}$$

100	60	76
T_{10}	T_8	T_9

Langkah 11: Reragaman:

60	76	100
T_8	T_9	T_{10}

$$60 + 76 = 136$$
$$T_8 + T_9 = T_{11}$$

136	100
T_{11}	T_{10}

Langkah 12: Reragaman:

100	136
T_{10}	T_{11}

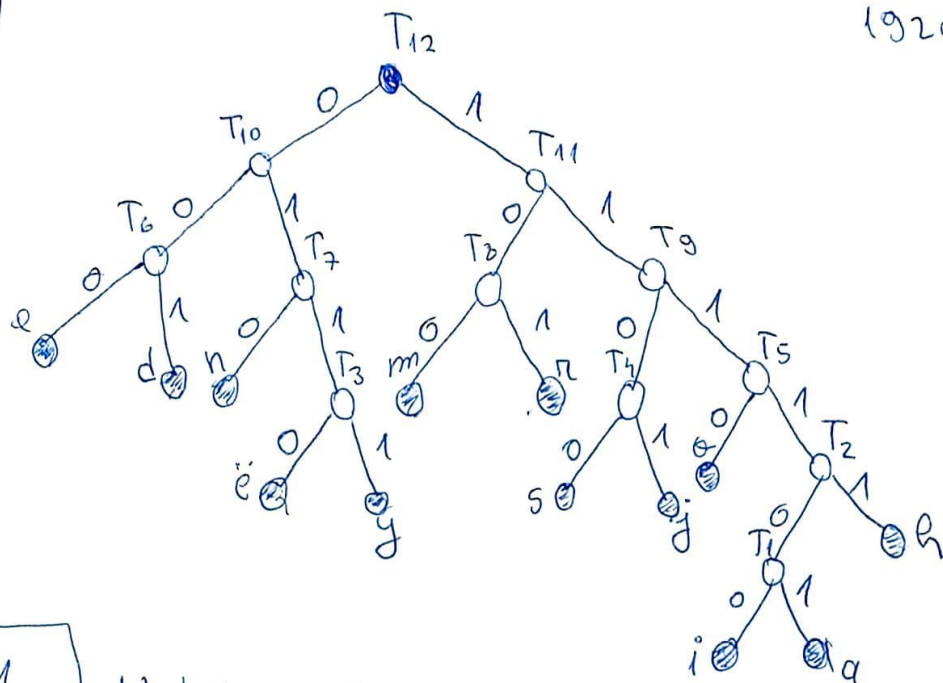
$$100 + 136 = 236$$
$$T_{10} + T_{11} = T_{12}$$

236
T_{12}

 ← root

13/ a)

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$d = 001$
 $s = 1100$
 $i = 111100$
 $h = 11111$
 $r = 101$
 $h = 010$
 $o = 1110$
 $ë = 0110$
 $m = 100$
 $j = 1101$
 $y = 0111$
 $a = 111101$
 $e = 000$

b) dëshirëj $\Rightarrow 001 | 0110 | 1100 | 1111 | 111100 | 101 | 1110 | 1101$

mësëj $\Rightarrow 100 | 0110 | 1100 | 1110 | 11011$

mëmnyëm $\Rightarrow 100 | 0110 | 010 | 0111 | 101 | 0110 | 010$

arsyjen $\Rightarrow 111101 | 101 | 1100 | 0111 | 1101 | 000 | 010$

$$c) W(\text{arsyjen}) = 6 \cdot 6 + 3 \cdot 31 + 4 \cdot 17 + 4 \cdot 15 + 4 \cdot 18 + 3 \cdot 22 = 395$$

$$W(\text{mëmnyëm}) = 3 \cdot 29 + 4 \cdot 14 + 3 \cdot 26 + 4 \cdot 15 + 3 \cdot 31 + 4 \cdot 14 = 430$$

$$W(\text{dëshirëj}) = 3 \cdot 23 + 4 \cdot 14 + 4 \cdot 17 + 5 \cdot 11 + 6 \cdot 5 + 3 \cdot 31 + 4 \cdot 14 = 427$$